

Serial No. 10/673,893

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AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

- 1 1. (currently amended) A method ~~for~~ comprising the step of
2 selecting a chrominance portion of a pixel of an image of a video signal to be
3 watermarked, said video signal to be watermarked without changing its luminance, said
4 selecting step employing a perception-based table that is independent of said image and
5 indicates for each of at least a plurality of possible pixels in a colorspace which, if any, of
6 the chrominance portions of said plurality of pixels in said colorspace should be selected
7 for watermarking.
- 1 2. (original) The invention as defined in claim 1 wherein said perception-based
2 table indicates for each entry therein whether to watermark only a first chrominance
3 portion or only a second chrominance portion.
- 1 3. (original) The invention as defined in claim 1 wherein said perception-based
2 table indicates for each entry therein whether to watermark a first chrominance portion, a
3 second chrominance portion, or not to watermark at all.
- 1 4. (original) The invention as defined in claim 1 wherein said perception-based
2 table is in computer readable form.
- 1 5. (original) The invention as defined in claim 1 wherein said perception-based
2 table divides an entire colorspace into regions, at least one of said possible pixels within
3 each said region, and said perception-based table supplies an indication for said pixel
4 based on which region of said perception-based table said pixel falls.

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1 6. (currently amended) The invention as defined in claim 1 wherein said pixel of
2 said image is part of a digital video bitstream represented in YUV format and wherein
3 said perception-based table indicates for any pixel that could possibly be in said image to
4 watermark U or V as a function of the Y, U, and V values of said pixel.

1 7. (currently amended) The invention as defined in claim 1 wherein said pixel of
2 said image is part of a digital video bitstream represented in YUV format, and wherein
3 said selecting step is performed using only said YUV formatted digital bitstream directly
4 and no other version of said digital bitstream formatted in any other format.

1 8. (currently amended) The invention as defined in claim 1 wherein said pixel of
2 said image is part of a digital video bitstream represented using a first colorspace type
3 representation, and wherein, said selecting step is performed using only a digital bitstream
4 formatted in said first colorspace type representation directly and other colorspace type
5 representation.

1 9. (currently amended) The invention as defined in claim 1 wherein said pixel of
2 said image is a decimated pixel derived from an original digital video bitstream.

1 10. (currently amended) The invention as defined in claim 1 wherein said pixel of
2 said image is a decimated pixel derived from an original digital video bitstream
3 represented in YUV format,

1 11. (currently amended) The invention as defined in claim 1 wherein said pixel of
2 said image is a quantized pixel derived from an original digital video bitstream.

1 12. (currently amended) The invention as defined in claim 1 wherein said pixel of
2 said image is a quantized pixel derived from an original digital video bitstream
3 represented in YUV format,

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1 13. (currently amended) The invention as defined in claim 1 wherein said
2 perception-based table contains information to indicate which, if any, of the chrominance
3 portions should be selected for watermarking for ~~each~~ every possible pixel value of the
4 entirety of said colorspace.

1 14. (original) The invention as defined in claim 1 wherein said perception-based
2 table contains information to indicate which, if any, of the chrominance portions should
3 be selected for watermarking for each possible pixel of only a prescribed portion of said
4 colorspace, and wherein said selecting step further comprises the step of determining that
5 ~~a said pixel~~ of said image is within said prescribed portion of said colorspace for which
6 said perception-based table contains information.

1 15. (currently amended) The invention as defined in claim 1 wherein said
2 perception-based table contains information to indicate which, if any, of the chrominance
3 portions should be selected for watermarking for each possible pixel of only a portion of
4 said colorspace, and wherein said method further comprises the steps of:
5 determining that ~~a said pixel~~ of said image is not within said portion of said
6 colorspace for which said perception-based table contains information; and

7 determining which, if any, of the chrominance portions should be selected for
8 watermarking for said pixel of said image, as a computed function of at least one value of
9 said pixel.

1 16. (currently amended) The invention as defined in claim 1 wherein a
2 chrominance portion of said pixel of said image is watermarked by having its value
3 changed to represent the conveyance of additional data other than the original value of
4 said chrominance portion.

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1 17. (currently amended) Apparatus for supplying an indication as to which
2 chrominance portion of a pixel an image of a video signal, if any, is better suited to be
3 altered so as to carry additional watermark information without changing said pixel's
4 luminance, said apparatus comprising a perception-based table in a computer readable
5 media for at least a portion of the possible pixel colorspace, said table being independent
6 of said image, said table specifying for pixels that are within said portion of said
7 colorspace the chrominance portion to be indicated by said apparatus.

1 18. (currently amended) The invention as defined in claim 17 further comprising
2 a computation unit for indicating for a pixel of said image that is not within said portion
3 of said colorspace which chrominance portion is to be indicated based on at least a value
4 of one of said chrominance portions of said pixel of said image.

1 19. (currently amended) The invention as defined in claim 17 wherein said
2 chrominance portion is better suited to be altered when altering said chrominance portion
3 will produce less, if any, visible artifact than altering any other chrominance portion of
4 said pixel of said image.

1 20. (currently amended) A method for detecting a watermark signal comprising
2 the step of:

3 selecting a chrominance portion of a pixel of an image of a video signal, said
4 video signal having been to be watermarked without changing its luminance, said
5 selecting step employing a perception-based table that is independent of said image and
6 which indicates for each of at least a plurality of possible pixels in a colorspace which, if
7 any, of the chrominance portions most likely had watermark data added thereto.

1 21. (currently amended) Apparatus for selecting a chrominance portion of a pixel
2 of an image of a video signal to be watermarked, said apparatus comprising a perception-
3 based table in a computer readable medium that indicates for each of at least a plurality of
4 possible pixels in at least a portion of a colorspace which, if any, of the chrominance
5 portions would be least likely to introduce a visible artifact should watermark data be
6 added thereto, said video signal to be watermarked without changing its luminance.

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1 22. (currently amended) Apparatus for selecting a chrominance portion of a pixel
2 of an image of a video signal to be watermarked so that there are effectively no changes
3 to a luminance of said video signal, said apparatus comprising:

4 a computer readable store containing a perception-based table that is independent
5 of said image and which indicates for each of at least a plurality of possible pixels in at
6 least a portion of a colorspace which, if any, of the chrominance portions should be
7 selected for watermarking; and

8 means for accessing said store to determine which chrominance portion, if any, to
9 select, when said pixel of said image to be watermarked is one of said pixels in said
10 portion of said colorspace.

1 23. (currently amended) The invention as defined in claim 22 further comprising
2 means for computing as a function of a least one value of said pixel of said image which,
3 if any, of the chrominance portions should be selected for watermarking, said means for
4 computing operating only when said pixel is not one of said pixels in said portion of said
5 colorspace.

1 24. (currently amended) Apparatus for selecting a chrominance portion of a pixel
2 of an image of a video signal, said video signal having been ~~to be~~ watermarked without
3 changing its luminance, said apparatus comprising:

4 a computer readable store containing a perception-based table that is independent
5 of said image and which indicates for each of at least a plurality of possible pixels in at
6 least a portion of a colorspace which, if any, of the chrominance portions most likely had
7 watermarking data added thereto; and

8 means for accessing said store to determine which chrominance portion, if any, to
9 select, when said pixel is one of said pixels in said portion of said colorspace

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1 25. (New) Apparatus in a receiver for selecting a chrominance portion of a pixel
2 of an image of a video signal that may have been watermarked in a transmitter, said video
3 signal have been watermarked so as not to change its luminance, the apparatus
4 comprising:

5 a computer readable store containing a perception-based table that is independent
6 of said image and which indicates for each of at least a plurality of possible pixels in at
7 least a portion of a colorspace which, if any, of the chrominance portions was most likely
8 selected to be watermark; and

9 means for accessing said store to determine which chrominance portion, if any, to
10 select, when said pixel of said image is within said portion of said colorspace.

1 26. (New) A method comprising the step of:

2 selecting at most one chrominance portion of a pixel of an image of a video signal
3 to be watermarked by adding thereto additional information, said selecting step
4 employing a perception-based table that is independent of (i) said image and (ii) said
5 additional information, said table indicating for each of at least a plurality of possible
6 pixels in a colorspace which one, if any, of the chrominance portions of said plurality of
7 pixels in said colorspace should be selected to have said additional information added
8 thereto.

1 27. (New) Apparatus for supplying an indication as to which chrominance portion
2 of a pixel an image of a video signal, if any, is better suited to be altered so as to carry
3 additional watermark information, said apparatus comprising a perception-based table in
4 a computer readable media for at least a portion of the possible pixel colorspace, said
5 table being independent of (i) said image and (ii) said additional watermark information,
6 said table specifying for pixels that are within said portion of said colorspace the
7 chrominance portion to be indicated by said apparatus.

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1 28. (New) A method for detecting a watermark signal comprising the step of:
2 selecting a chrominance portion of a pixel of an image of a video signal, said
3 video signal having been watermarked with watermark information, said selecting step
4 employing a perception-based table that is independent of (i) said image and (ii) said
5 watermark information and which indicates for each of at least a plurality of possible
6 pixels in a colorspace which, if any, of the chrominance portions most likely had
7 watermark data added thereto.

1 29. (New) Apparatus for selecting a chrominance portion of a pixel of an image
2 of a video signal to be watermarked by adding thereto additional information, said
3 apparatus comprising a perception-based table in a computer readable medium that is
4 independent of (i) said image and (ii) said additional information and which indicates for
5 each of at least a plurality of possible pixels in at least a portion of a colorspace which, if
6 any, of the chrominance portions would be least likely to introduce a visible artifact
7 should watermark data be added thereto.

1 30. (New) A method for detecting a watermark signal comprising the step of:
2 selecting a chrominance portion of a pixel of an image of a video signal that had
3 watermark data added thereto, said selecting step employing a perception-based table that
4 is independent of (i) said image and (ii) said watermark data and which indicates for each
5 of at least a plurality of possible pixels in a colorspace which, if any, of the chrominance
6 portions most likely had watermark data added thereto.

1 31. (New) A method comprising the step of:
2 selecting no more than one chrominance portion of a pixel of an image of a video
3 signal to be watermarked, said selecting step employing a perception-based table that is
4 independent of said image and indicates for each of at least a plurality of possible pixels
5 in a colorspace which, if any, of the chrominance portions of said plurality of pixels in
6 said colorspace should be selected for watermarking.

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1 32. (New) Apparatus for supplying an indication as to only one of which, if any,
2 chrominance portion of a pixel an image of a video signal, is better suited to be altered so
3 as to carry additional watermark information, said apparatus comprising a perception-
4 based table in a computer readable media for at least a portion of the possible pixel
5 colorspace, said table being independent of said image, said table specifying for pixels
6 that are within said portion of said colorspace the particular no more than one
7 chrominance portion to be indicated by said apparatus.

1 33. (New) A method for detecting a watermark signal comprising the step of:
2 selecting no more than one of a chrominance portion of a pixel of an image of a
3 video signal, said video signal having been watermarked, said selecting step employing a
4 perception-based table that is independent of said image and which indicates for each of
5 at least a plurality of possible pixels in a colorspace which, if any, of the chrominance
6 portions most likely had watermark data added thereto.

1 34. (New) Apparatus for selecting no more than one chrominance portion of a
2 pixel of an image of a video signal to be watermarked, said apparatus comprising a
3 perception-based table in a computer readable medium that indicates for each of at least a
4 plurality of possible pixels in at least a portion of a colorspace which, if any, of the
5 chrominance portions would be least likely to introduce a visible artifact should
6 watermark data be added thereto.
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